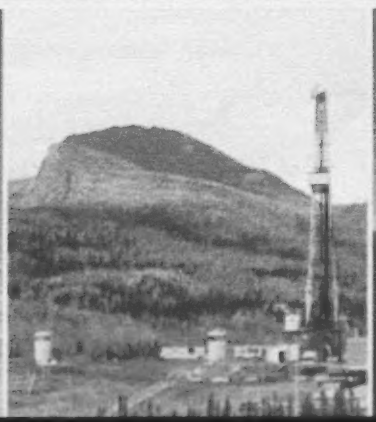
Aboriginal Affairs and Northern Development Canada
Affaires autochtones et Développement du Nord Canada

Northern Oil and Gas Annual Report

2011



Canada

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Northern Oil and Gas Annual Report 2011

The management of oil and gas resources on Crown lands north of latitude 60°N in the Northwest Territories, Nunavut and the northern offshore is a federal responsibility carried out by the Northern Oil and Gas Branch of Aboriginal Affairs and Northern Development Canada.

Petroleum resource management on Crown lands is exercised under federal legislation. The *Canada Petroleum Resources Act* and its regulations govern the granting and administration of Crown exploration and production rights and set the royalty regime. The *Canada Oil and Gas Operations Act* governs the regulation of petroleum operations and associated benefits requirements. Land, royalty and benefit matters are managed by the department on behalf of the Minister of Aboriginal Affairs and Northern Development while the National Energy Board takes the lead role in approval of operations.

Information on the northern oil and gas regime may be found on the web at http://www.aadnc-aandc.gc.ca/eng/1100100036087.

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Cover photos from left to right:
Seismic truck convoy in the Mackenzie Delta – G. Morrell;
Drilling derrick in central Mackenzie Valley, NWT;
Operations station in the Mackenzie Delta – NWT Regional Office, AANDC

Message from the Honourable John Duncan, PC, MP
Minister of Aboriginal Affairs and Northern Development

I am pleased to table before Parliament this annual report on the administration of oil and gas lands in the Northwest Territories, Nunavut and northern offshore for the year ending December 31, 2011.

In addition to being a fundamental part of our Canadian heritage and our national identity, the North, with its significant oil and gas potential will play an important role in our country's future economic growth.

The Government of Canada is committed to increasing our knowledge of northern energy and mineral potential to facilitate sustainable economic development in the Canadian Arctic. In July, the results of the 2010-2011 annual Calls for Bids (oil and gas) processes were announced. These resulted in eleven new exploration licences in the central Mackenzie Valley being awarded for work commitments totalling $534 million, and two additional exploration licences in the Beaufort Sea. Today, the application of new technology and techniques on these new licences opens up the possibility of developing unconventional resource reservoirs onshore and the exploration of new areas in Canada's Arctic offshore.

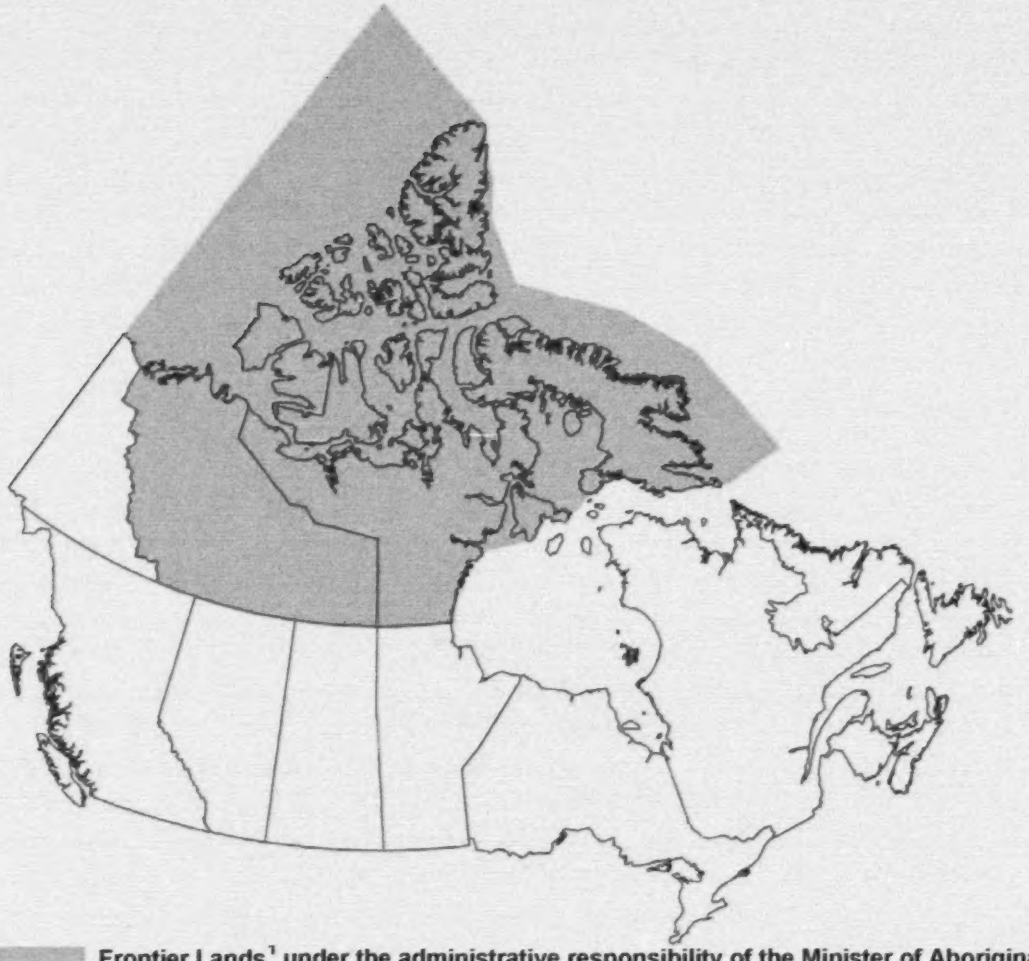
The cyclical nature of the upstream oil and gas exploration sector was evident in 2011, with only one new exploration well drilled in the Northwest Territories. Canadian natural gas prices declined to remain at low levels while oil prices rose, and in this context, royalties from oil and gas production on northern frontier lands in 2011 were 26% lower than in 2010.

On December 15, 2011, the National Energy Board released its report "*Review of Offshore Drilling in the Canadian Arctic*". The report confirmed that drilling in the North can be done safely and the National Energy Board has the tools necessary to ensure the safety of both workers and the environment. With the environment very much in mind, this year saw the implementation of the Beaufort Regional Environmental Assessment, a four year initiative to develop a knowledge base of scientific and socio-economic information for the Beaufort Sea.

I invite you to consult the *Northern Oil and Gas Annual Report* for further details on the exploration and development of Canada's northern oil and gas resources over the past year.

John Duncan

May 2012



Frontier Lands[1] under the administrative responsibility of the Minister of Aboriginal Affairs and Northern Development

[1] "Frontier lands" are defined under section 2 of the *Canada Petroleum Resources Act*, as follows:
"frontier lands" means lands that belong to Her Majesty in right of Canada, or in respect of which Her Majesty in right of Canada has the right to dispose of or exploit the natural resources, and that are situated in

a) the Northwest Territories, Nunavut or Sable Island, or
b) submarine areas, not within a province, in the internal waters of Canada, the territorial sea of Canada or the continental shelf of Canada,

but does not include the adjoining area, as defined in section 2 of the *Yukon Act*.

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NORTHERN OIL AND GAS

Introduction

Northern Canada is richly endowed with oil and gas resources which, with the exception of Norman Wells in the central Mackenzie Valley and several gas fields in the southern Northwest Territories, remain little developed. Targets of exploration seeing current interest include large untested structures in the Arctic offshore and opportunities onshore.

The application of new technology to develop unconventional reservoirs such as shale continues to grow rapidly in North America and is now being considered for Northern Canada. This new opportunity complements conventional oil and gas exploration in the North. Techniques such as hydraulic fracturing in horizontally drilled well bores are allowing industry to access oil and gas resources which could not be developed using the conventional techniques of previous decades. Although the focus has been on natural gas resources locked in shale, comparable techniques can also be applied to improving recovery from oil reservoirs. Favorable geology is one key to successful development of this type of resource and excellent candidates are known to exist North of 60° which are attracting explorers.

In terms of operations, 2011 saw limited activity with only one new exploration well drilled in the Northwest Territories with expenditures at the lowest point in a decade. This is a reflection of the cyclical nature of the upstream oil and gas exploration sector for which there are many contributing factors, including prices for oil and gas.

Interest in Calls for Nominations is one of the early signals that a new cycle of exploration is beginning. In 2011, industry acquired eleven new exploration licences in the central Mackenzie Valley, Northwest-Territories, for work bid commitments of over half a billion dollars. Industry has indicated that their primary interest is to explore the potential of shale formations close to existing pipeline infrastructure near Norman Wells.

In 2011, industry interest was divided between offshore exploration for large conventional fields in the deeper waters of the Beaufort Sea and onshore exploration in the central Mackenzie Valley. An important development for offshore explorers was the release by the National Energy Board (NEB) on December 15, 2011, of its report "Review of Offshore Drilling in the Canadian Arctic." This was the culmination of an extended review initiated by the NEB shortly after the Deepwater Horizon disaster in the Gulf of Mexico. The report confirmed that drilling in the North can be done safely and that the NEB has the necessary tools to ensure the safety of both workers and the environment. Holders of exploration licences can now refer to the filing requirements for proposed drilling operations published as a result of this review.

Oil and gas prices continued to follow opposite trends in 2011. Canadian oil prices saw an overall upwards movement with the average price over the year 18% higher than in 2010. Oil prices remained high globally with supply affected by reduced production in some countries, most notably Libya.

Table 1: Oil and Gas Prices

	December 2010	December 2011	Average 2011
Oil - C$ per m^3 (Average at Edmonton)	540.88	618.8	601.11
Gas - C$ per GJ (Average at AECO)	3.62	3.25	3.53

Source: Natural Resources Canada

Canadian natural gas prices fell 10% during 2011, closing in December at their lowest in 27 months. Increasing supply from shale gas production in the United States and lower

demand due to warm weather and a fragile economic recovery in the United States served to keep prices low.

The low price of gas dampened interest in further exploration for natural gas in the North with areas known to be gas rich such as the Mackenzie Delta seeing no exploration as a result. Sustained prices for oil and natural gas liquids, however, continue to be a source of encouragement for companies planning exploration in Canada's North.

The Mackenzie Gas Project is an example of a project potentially important for the commercialization of Canada's northern oil and gas resources in the western Arctic. At this time, the decision to proceed with the Project rests with the proponents based on their commercial considerations.

2011 In Brief

Rights Management

Two Calls for Bids closed on June 21, 2011, attracting industry interest in both the central Mackenzie Valley and Beaufort Sea/Mackenzie Delta regions. In a return to the Mackenzie Plain, industry was awarded eleven new exploration licences covering nearly nine hundred thousand hectares, north and south of the Norman Wells field, for a total work commitment expenditure of $534 million. This is a record sale for this region in terms of land area and bid values. Successful bidders were ConocoPhillips Canada Resources Corp., ExxonMobil Canada Limited, Husky Oil Operations Limited, Imperial Oil Resources Ventures Limited, MGM Energy Corp., 6362 N.W.T. Limited and Shell Canada Limited.

In the Beaufort Sea, two shallow-water exploration licences covering over two hundred thousand hectares were awarded to Arctic Energy & Minerals Limited for a total work commitment expenditure of two million dollars.

Operations

One new exploratory well was drilled in the central Mackenzie Valley and one seismic program was commenced, also in the Mackenzie Valley. Drilling was limited to two new development wells to sustain production from the Cameron Hills Field in the southern Northwest Territories.

Total exploration expenditures in the North in 2011 are provisionally estimated at $20 million, down from $30 million in 2010.

Production

Three fields produced oil and/or gas in 2011: the Norman Wells oil field in the central Mackenzie Valley, the Ikhil gas field on the Mackenzie Delta and the Cameron Hills field southwest of Hay River in the southern Northwest Territories. Total natural gas production was 164.3×10^6 m^3 (5.8 billion cubic feet) and total oil production was 608.6×10^3 m^3 (3.8 million barrels).

Royalties

Royalties received in the calendar year 2011 from oil and gas production on northern frontier lands amounted to $11,652,548.

Benefits

In response to recommendations made by the Auditor General of Canada as well as from stakeholders, the department advanced a more streamlined planning and reporting process for Benefits Plans required by legislation for oil and gas activities.

The newly proposed Canada Benefits Plan Guidelines for the North are intended to maximize economic benefits to Northerners and other Canadians, as well as clarify the Benefits Plan approval process for companies proposing northern operations.

BEAUFORT REGIONAL ENVIRONMENTAL ASSESSMENT

The implementation of the Beaufort Regional Environmental Assessment (BREA) got underway in 2011. Seventeen research projects and six separate working groups have begun their efforts to contribute to the goals of filling regional information and data gaps related to offshore oil and gas activities, and supporting efficient and effective regulatory decision-making.

History of Exploration in the North

Oil and gas exploration has a long history in the Canadian North, dating back to the Norman Wells oil discovery drilled in 1920. The late 1940s and 1950s saw increased exploration in the southern Northwest Territories followed by exploration throughout the North in the period 1960 to 1985, activity stimulated by the 'oil price shock' of 1974 and concerns for domestic supply.

Wells drilled in the Northwest Territories, Nunavut and Arctic offshore total 1563[2] since the Norman Wells discovery with drilling activity peaking from the early 1970s to the late 1980s. The larger proportion of these wells (1093) were drilled in the Mackenzie Valley where 27 discoveries have been made. Of these, one oilfield in the central Mackenzie Valley, one oil and gas field and five gas fields (in the southern Northwest Territories) have produced oil or gas. Only the two fields with oil production are producing today.

Two hundred and seventy five wells have been drilled in the Mackenzie Delta/Beaufort Sea region with 93 of these designated as offshore wells, although many were drilled in very shallow water from thickened ice platforms or artificial islands. There are 60 discoveries in the region but, in the absence of a pipeline to southern markets, only one small gas field (Ikhil) has been developed to supply local demand. Only one offshore well has been drilled in the last 22 years.

In the Arctic archipelago north of 75°, 192 wells were drilled between 1962 and 1987: most were in the Sverdrup Basin where 19 discoveries have been made. Three offshore wells were drilled in the eastern Arctic offshore in the 1970s: one discovery was made in Davis Strait which remains undeveloped. Elsewhere, seven wells were drilled on the Hudson Bay/Foxe Basin/Hudson Strait region between 1969 and 1985 with no discoveries made.

The mid 1980s saw expanded development of the major Norman Wells oil field in the central Mackenzie Valley and the construction of a pipeline from Norman Wells to northern Alberta. Norman Wells is Canada's most northerly producing oil field.

Current interest in the North dates from the mid-1990s with the issuance of new exploration licences by the Crown in the southern Northwest Territories, and subsequently in the central Mackenzie Valley. Later in the decade, companies acquired exploration rights to lands across much of the Mackenzie Delta and adjacent offshore. This stimulated exploration activity for a decade as companies worked to meet work commitments on these licences. In 2007 and 2008 this interest extended to deeper water areas of the continental margin in the central Beaufort Sea, a trend which was reinforced in 2010 with the issuance of a third deep water licence.

[2] Data on numbers of wells are from the National Energy Board.

Oil and Gas Resources

According to the National Energy Board, approximately 35% of Canada's remaining marketable resources of natural gas and 37% of remaining recoverable light crude oil is in Northern Canada (Canada's Energy Futures, 2011).

New exploration and development for natural gas in western Canada is increasingly turning to shale and low permeability rock formations using the rapidly developing technologies of horizontal drilling and multi-stage hydraulic fracturing. Conventional gas pools remain of economic interest, however, especially those rich in natural gas liquids. Canada's North is thought to have excellent potential for such large conventional gas fields, beyond those major discoveries already made.

Despite Canada's oil sands being the primary driver behind Canada's increasing oil production, investment in improving recovery from existing fields and low permeability formations is highly attractive at today's prices, as is exploration for conventional oil pools in regions which have not yet exhausted their exploration potential. Many regions of Canada's North have favorable geology and the potential for large conventional oil fields. In particular, the Arctic offshore offers a vast theatre for offshore operations in regions which have been minimally explored with modern exploration techniques.

Regional estimates of Canada's northern resource potential are listed in Table 2. These are mean estimates of potential derived by probabilistic methods. Large uncertainties remain about resource potential in many of Canada's northern petroleum basins, especially those which have yet to be tested by the drill. New geological studies led by the Geological Survey of Canada under the Government's Geoscience for Energy and Minerals Program are building confidence that these potential estimates in Table 2 are based on sound data.

The most accessible of these potential resources lie between the border with British Columbia and Alberta at 60 degrees North and the Beaufort Sea in a broad corridor running between the Rocky Mountains and the Canadian Shield. Portions of the Horn River and Liard Basins extend into the southern Northwest Territories. These basins are seeing active development in northern British Columbia and Alberta, particularly for shale gas. The western Arctic includes much of the Northwest Territories and adjacent Arctic offshore, an area estimated to contain more than half of the recoverable petroleum in northern Canada, with the Beaufort-Mackenzie Basin the largest potential contributor.

In the Mackenzie Delta area, major gas fields at Taglu and Parsons Lake, together with the large Niglintgak field are proposed for development by the Mackenzie Gas Project. Combined resources in these fields are estimated by the proponents at 161 x 10^9 m^3 (5.7 trillion cubic feet). Additional resources in more recent discoveries may augment this production.

Discovered gas fields in the Colville Hills of the central Mackenzie Valley could access a future Mackenzie Valley gas system by means of a short lateral pipeline. The central Mackenzie Valley also holds considerable potential for further oil discoveries. Declining production from the major oil field at Norman Wells opens spare capacity on the existing Enbridge oil pipeline to Alberta. New discoveries in the vicinity would be close to these existing facilities.

Discovered gas volumes in Canada's Arctic Islands (north of 75°) are comparable to those in the Beaufort Sea/Mackenzie Delta region. The most promising basin is the Sverdrup Basin where past discoveries include major gas fields at Drake Point and nearby Hecla with combined discovered resources estimated at 257 x 10^9 m^3 (9.1 trillion cubic feet). Significant oil discoveries and largely unexplored oil and gas potential is

also present in this vast region of diverse geology.

Several regions of the North remain entirely undrilled. Examples are the Arctic Continental Shelf, deep water areas of the Beaufort Sea continental shelf and slope, and most of the Canadian half of Baffin Bay including Lancaster Sound. In these areas, oil and gas potential is largely conceptual although regional studies are confirming high potential for both oil and gas.

In the 1970s, exploration in the Canadian waters of Davis Strait was successful with a gas discovery at Hekja but in recent years exploration has been limited to reconnaissance seismic programs extending westwards from more active exploration offshore Greenland. In 2011, exploration continued in the Greenland half of Baffin Bay with five new wells drilled. No discoveries were announced.

Unconventional hydrocarbons are of current interest in the Mackenzie Valley. These include shale gas and shale oil potential in the Mackenzie Valley in the extensive high quality Devonian source rocks, known to have generated the oil in the major Norman Wells field. No estimates for unconventional resources have been included in Table 2.

Table 2: Oil & Gas Resources

OIL RESOURCES

	Discovered Resources		Undiscovered Resources		Ultimate Potential	
Region	**10^6 m³**	***MMbbls***	**10^6 m³**	***MMbbls***	**10^6 m³**	***MMbbls***
Northwest Territories and Arctic Offshore	187.9	*1182.5*	799.7	*5032.6*	987.6	*6215.0*
Nunavut and Arctic Offshore	51.3	*322.9*	371.8	*2339.4*	423.1	*2662.3*
Arctic Offshore Yukon	62.5	*393.8*	412.7	*2596.8*	475.2	*2990.6*
Total	**301.7**	***1899.1***	**1584.1**	***9968.8***	**1885.9**	***11867.9***

GAS RESOURCES

	Discovered Resources		Undiscovered Resources		Ultimate Potential	
Region	**10^9 m³**	***Tcf***	**10^9 m³**	***Tcf***	**10^9 m³**	***Tcf***
Northwest Territories and Arctic Offshore	457.6	*16.2*	1542.2	*54.8*	1999.8	*71.0*
Nunavut and Arctic Offshore	449.7	*16.0*	1191.9	*42.3*	1641.6	*58.3*
Arctic Offshore Yukon	4.5	*0.2*	486.6	*17.3*	491.1	*17.4*
Total	**911.8**	***32.4***	**3220.7**	***114.4***	**4132.6**	***146.7***

- MMbbls - million barrels (of oil); Tcf - trillion cubic feet (of natural gas).
- Resources are 'recoverable': standard recovery factors have been applied: totals have been risked where conceptual (undrilled) plays are included in potential estimates.
- Numbers may not add precisely due to rounding.
- Adapted from Table 4 in Drummond, K.J. 2009, Northern Canada Distribution of Ultimate Oil and Gas Resources. Available at http://www.drummondconsulting.com/NCAN09Report.pdf. Compiled and integrated from several published sources which may underestimate or overestimate actual field resources. Volumes and distribution should be regarded as approximate and reflect the opinion of the consultant.
- The Arctic Offshore includes marine areas offshore Yukon and the Northwest Territories in the Beaufort Sea, and offshore Nunavut in the Arctic archipelago and Eastern Arctic. Resources within Yukon are not included and estimates in Table 4 have been adjusted to reflect the offshore portion only. Assignment of offshore areas by the consultant is based on extrapolation of onshore boundaries between Territories, and does not reflect any position of the Government of Canada.
- Note that discovered gas volumes do not include estimates for recent discoveries (at Ellice I-48, Olivier H-01, Langley K-30, Langley E-07, Kurk M-15 and Ellice J-27 in the Mackenzie Delta, and Summit Creek B-44, Stewart D-57, Lac Maunoir C-34 and Nogha C-49 in the central Mackenzie Valley).

OIL AND GAS MANAGEMENT

Rights Issuance

The Minister of Aboriginal Affairs and Northern Development provides industry with an annual opportunity to obtain exploration rights in the Northwest Territories, Nunavut and the northern offshore. The exploration rights are issued pursuant to the *Canada Petroleum Resources Act*. Current oil and gas disposition maps are available on the Aboriginal Affairs and Northern Development Canada website: http://www.aadnc-aandc.gc.ca/eng/1100100036125.

In accordance with the provisions of comprehensive land claim settlement agreements, the views and support of Aboriginal communities and organizations on the terms and conditions of the issuance and related matters are sought prior to rights issuance. Similarly, the Department consults and engages territorial governments and other federal bodies for environmental sensitivity information. After consideration of responses received, the areas opened for exploration may be adjusted from year to year.

A Call for Nominations precedes each Call for Bids, allowing industry to specify lands of interest for subsequent inclusion in a Call for Bids. Calls for Bids are open for the statutory minimum of 120 days, and are published in Part I of the *Canada Gazette*.

Exploration rights are issued pursuant to an open, competitive bidding process. A single bid evaluation criterion is used, currently the expenditure planned on exploration of the land block (the "work expenditure bid").This determines the successful bidder who is issued an exploration licence of up to nine years,

Figure 1: Map of the Central Mackenzie Valley Region

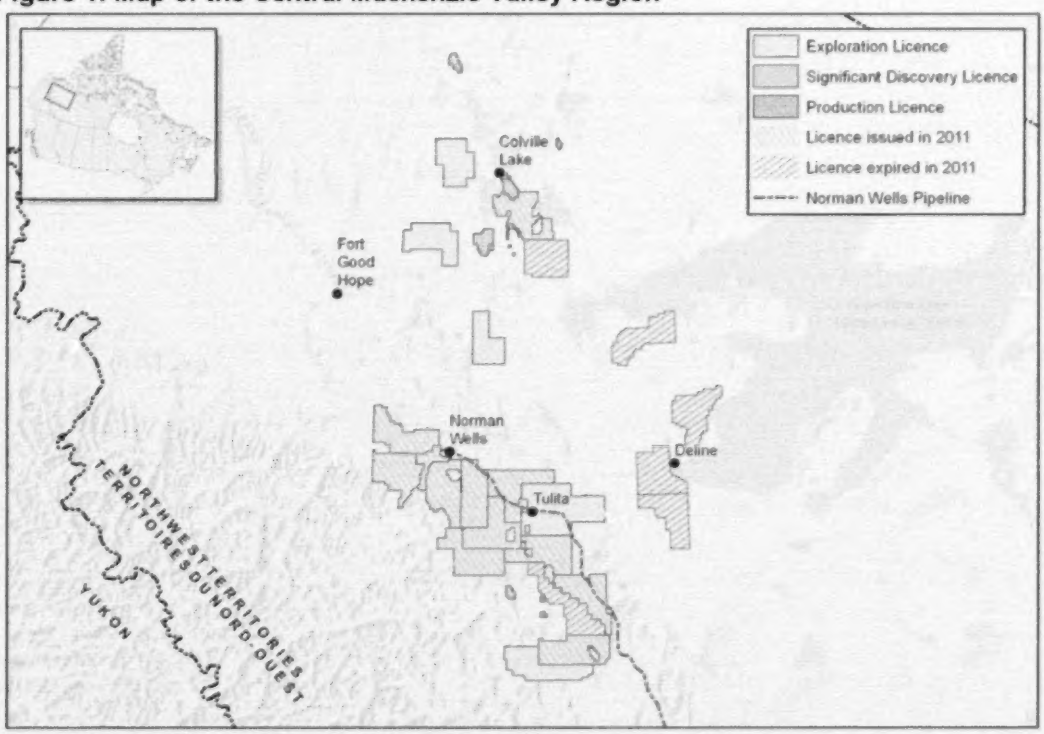
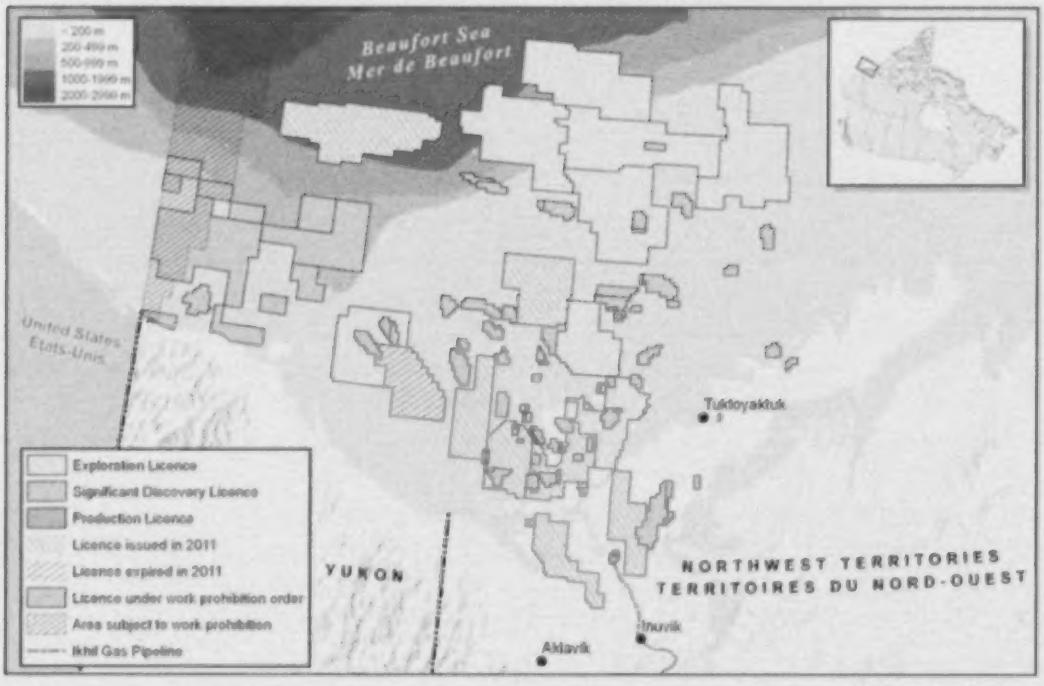


Figure 2: Map of the Beaufort Sea & Mackenzie Delta Region



comprising two periods. The successful bidder is expected to spend the dollar value of the proposed work during the first period of the licence, and is required to drill one well during this first period to continue the licence into the second period.

In February 2011, two Calls for Nominations closed with three parcels nominated in the Beaufort Sea & Mackenzie Delta and 11 parcels nominated in the central Mackenzie Valley. All nominated parcels were included in subsequent Calls for Bids, both of which were launched on February 19, 2011 and closed on June 21, 2011. The Central Mackenzie Valley Call for Bids resulted in the issuance of eleven exploration licences covering 897,888 hectares and totalling $534 million of work expenditures, representing a record sale in area of lands and bid values (see Figure 1). The Beaufort Sea & Mackenzie Delta Call for Bids resulted in the issuance of two exploration licences covering 211,195 hectares and totalling $2 million of work expenditures (see Figure 2).

In December 2011, one Call for Nominations was launched for the central Mackenzie Valley, closing January 31, 2012. At year end, preparations were underway for a Call for Nominations in the Beaufort Sea/Mackenzie Delta as well as in the Arctic Islands of Nunavut, planned for 2012.

When exploration results in a petroleum discovery, the legislation provides that application may be made for a declaration of significant discovery. The declaration process, administered by the National Energy Board, confirms a hydrocarbon discovery which satisfies specific technical criteria and describes the areal extent of discovery. Issuance of a significant discovery licence for lands covering the extent of the discovery is possible either:

a) upon application of the interest owner of an exploration licence subject to all or a portion of the significant discovery area, or
b) by award to the successful bidder following a call for bids in relation to all or a portion of the significant discovery area.

The significant discovery licence is a unique feature of the regime under the *Canada Petroleum Resources Act*. It rewards successful exploration by allowing for indefinite tenure to the petroleum discovery, recognizing that some discoveries may not be immediately economic to produce. Currently, no rentals are applied to significant discovery licences. The rights conferred by the significant discovery licence are identical to those provided under an exploration licence.

Once a developer has determined that a discovery is commercial and wishes to commence oil or gas production, legislation allows for application to the National Energy Board for a declaration of commercial discovery area. Similar to the provisions for issuance of a significant discovery licence, issuance of a production licence is possible either:

a) upon application of the interest owner of an exploration licence or significant discovery licence subject to all or a portion of the commercial discovery area; or,
b) by award to the successful bidder following a call for bids in relation to all or a portion of the commercial discovery area.

A production licence has a term of 25 years which is renewable so long as commercial production continues. Additional rights conferred under a production licence include: the exclusive right to produce petroleum from those frontier lands, and title to the petroleum so produced.

Table 3 outlines land dispositions by region and by interest.

Interests Issued and Terminated In 2011

The Department maintains a public registry of petroleum interests and instruments registered under Part VII of the *Canada Petroleum Resources Act*. This is the official record of rights holders and any transfer of rights or change of ownership must be registered. Monthly registry activi' · reports are online at http://www.aadnc-aandc.gc.ca/eng/1100100036878.

In 2011, thirteen new exploration licences were awarded as a result of Calls for Bids in Beaufort Sea/Mackenzie Delta and Central Mackenzie Valley Regions. Two licences were issued to Arctic Energy & Minerals Limited for shallow water parcels in the Beaufort Sea: EL464 and EL465. The remaining eleven licences were issued for lands within the Mackenzie Plain, north and south of the Norman Wells field as follows: EL462 and EL463 to Husky Oil Operations Limited; EL467, EL468 and EL469 to Shell Canada Limited; EL470 to ConocoPhillips Canada Resources Corp.; EL471 and EL472 to Imperial Oil Resources Ventures Limited and ExxonMobil Canada Limited; EL473, EL474 and EL475 to MGM Energy Corp. and 6362 N.W.T. Limited.

Within in the Beaufort Sea/Mackenzie Delta and Central Mackenzie Valley regions, five exploration licences terminated upon expiry of Period 1 with no well drilled to extend the licence into Period 2: EL435, EL436, EL437, EL438 and EL439. Two further licences terminated by surrender: EL431 and EL441.

Table 3: Land Disposition as of December 31, 2011

Region	Exploration Licence	Significant Discovery Licence	Production Licence	Former Rights[1]	Total
In hectares					
Arctic Islands	0	332,882	0	0	**332,882**
Eastern Arctic Offshore	0	11,184	0	862,500	**873,684**
Hudson Bay[2]	0	0	0	126,376	**126,376**
Beaufort Sea	2,168,020	205,636	0	0	**2,373,656**
Mackenzie Delta	382,412	134,109	3,423	0	**519,944**
Central Mackenzie Valley	1,456,372	52,725	0	654	**1,509,751**
Southern Northwest Territories	0	65,729	32,842	21,107	**119,678**
Total	**4,006,804**	**802,265**	**36,265**	**1,010,637**	**5,855,971**

Region	Exploration Licence	Significant Discovery Licence	Production Licence	Former Rights[1]	Total
By Interest Type (number of licences)					
Arctic Islands	0	20	0	0	**20**
Eastern Arctic Offshore	0	1	0	30	**31**
Hudson Bay[2]	0	0	0	8	**8**
Beaufort Sea	12	38	0	0	**50**
Mackenzie Delta	5	38	2	0	**45**
Central Mackenzie Valley	17	11	0	6	**34**
Southern Northwest Territories	0	31	21	8	**60**
Total	**34**	**139**	**23**	**52**	**248**

[1] Permits and/or Leases issued under former legislative regimes pursuant to ss. 112(2) of the *Canada Petroleum Resources Act*

[2] Permits onshore islands in northern Hudson Bay are under the jurisdiction of Aboriginal Affairs and Northern Development Canada. Offshore permits in Hudson Bay (not included in this table) are under the jurisdiction of Natural Resources Canada

During this year, the Department worked with companies to effect consolidation of exploration licences pursuant to subsection 25(3) of the *Canada Petroleum Resources Act*. This provision allows companies to optimize exploration and operating efficiencies on lands by consolidating two or more exploration licences into a single licence. Accordingly, two new exploration licences were issued: EL461 (consolidating EL434 and EL450) to MGM Energy Corp., ConocoPhillips Canada Resources Corp., Phillips Petroleum Canada Ltd., and Phillips Petroleum Resources, Ltd.; and, EL466 (consolidating EL440 and EL454) was issued to MGM Energy Corp. and Devon NEC Corporation.

Licences which were issued, expired or surrendered in 2011 are listed in Table 4 and illustrated in Figures 1 and 2.

No significant discovery licences or production licences were issued during the year 2011.

Oil and Gas lease 529-R-69 in the southern Northwest Territories, issued under former legislation (*Territorial Lands Act, Canada Oil and Gas Land Regulations*), expired at the end of term on May 30, 2011.

Table 4: Exploration Licences

Licence	Area (ha)	Representative [1]	Effective Date	Well to be Drilled by[5]	Expiry Date	Work Expenditure Bid[2]
Beaufort Sea/Mackenzie Delta						
EL317[3]	175,810	Talisman Energy Inc.	05 Oct 1986	N/A		N/A
EL329[3]	349,981	BP Canada Energy Resources Company	05 Sep 1987	N/A		N/A
EL446	205,321	Imperial Oil Resources Ventures Limited	01 Oct 2007	30 Sep 2012	30 Sep 2016	$585,000,000
EL447	103,711	ConocoPhillips Canada Resources Corp.	01 Sep 2007	31 Aug 2012	31 Aug 2016	$12,084,131
EL448	108,185	Chevron Canada Limited	31 Dec 2007	30 Dec 2012	30 Dec 2016	$1,010,100
EL449	202,380	Imperial Oil Resources Ventures Limited	01 Dec 2008	30 Nov 2013	30 Nov 2017	$1,180,100,000
EL451	205,359	BP Exploration Company Ltd.	01 Dec 2008	30 Nov 2013	30 Nov 2017	$15,100,000
EL452	196,497	ConocoPhillips Canada Resources Corp.	01 Dec 2008	30 Nov 2013	30 Nov 2017	$2,543,896
EL453	203,635	BP Exploration Company Ltd.	01 Dec 2008	30 Nov 2013	30 Nov 2017	$1,100,000
EL456	73,391	MGM Energy Corp.	05 Jan 2011	04 Jan 2016	04 Jan 2020	$1,697,000
EL457	67,284	MGM Energy Corp.	05 Jan 2011	04 Jan 2016	04 Jan 2020	$1,530,000
EL458	75,244	MGM Energy Corp.	05 Jan 2011	04 Jan 2016	04 Jan 2020	$1,299,600
EL459	74,618	MGM Energy Corp.	05 Jan 2011	04 Jan 2016	04 Jan 2020	$1,160,000
EL460	205,946	Chevron Canada Limited	05 Jan 2011	04 Jan 2016	04 Jan 2020	$103,300,000
Licences issued in 2011						
EL461-A *(EL434)*[4]	50,552	MGM Energy Corp.	14 Mar 2011	02 Jun 2013	02 May 2015	$41,923,636
EL461-B *(EL450)*[4]	41,323				02 Jun 2017	
EL464	90,381	Arctic Energy & Minerals Limited	01 Sep 2011	31 Aug 2016	31 Aug 2020	$1,000,000
EL465	120,814	Arctic Energy & Minerals Limited	01 Sep 2011	31 Aug 2016	31 Aug 2020	$1,000,000
Licence terminated, expired or surrendered in 2011						
EL434	56,624	MGM Energy Corp.	03 May 2006	02 May 2011	02 May 2015	$40,169,000
EL435	99,942	Shell Canada Limited	03 May 2006	02 May 2011	02 May 2015	$11,552,332
EL450	41,323	MGM Energy Corp.	03 Jun 2008	02 Jun 2013	02 Jun 2017	$1,754,636

[1] These representatives are current as of December 31, 2011.

[2] Work Bids rounded to the nearest $.

[3] Under work prohibition orders pursuant to ss. 12(1)(a) of the *Canada Petroleum Resources Act*.

[4] Pursuant to ss. 25(3) of the *Canada Petroleum Resources Act*, licences EL434 & EL450 were terminated and replaced by a new consolidated licence EL461; similarly licences EL440 & EL454 were terminated and replaced by a new consolidated licence EL466. Note that on consolidated licences, one well may not be sufficient to hold all lands in the licences.

[5] Per the terms of the licence, Period 1 may be extended.

✓ Well requirement met as of year end. The drilling of one exploratory or delineation well prior to the end of Period 1 of the term is a condition precedent to obtaining tenure to Period 2.

Table 4: Exploration Licences (continued)

Licence	Area (ha)	Representative [1]	Effective Date	Well to be Drilled by[5]		Expiry Date	Work Expenditure Bid[2]
Central Mackenzie Valley - Mainland							
EL442	63,312	MGM Energy Corp.	10 May 2007	09 May 2012		09 May 2016	$8,260,000
EL443	91,116	Husky Oil Operations Limited	10 May 2007	09 May 2012		09 May 2016	$4,888,888
EL444	74,604	BG International Limited	10 May 2007	09 May 2012		09 May 2016	$1,100,000
EL445	79,240	BG International Limited	10 May 2007	09 May 2012		09 May 2016	$1,100,000
EL455	80,240	MGM Energy Corp.	05 Jan 2011	04 Jan 2016		04 Jan 2020	$1,699,990
Licences issued in 2011							
EL462	87,748	Husky Oil Operations Limited	30 Aug 2011	29 Aug 2016		29 Aug 2020	$188,000,000
EL463	87,034	Husky Oil Operations Limited	30 Aug 2011	29 Aug 2016		29 Aug 2020	$188,000,000
EL466-A *(EL440)*[4]	87,872	MGM Energy Corp.	15 Jan 2011	09 May 2012	✓	09 Jul 2016	$11,787,626
EL466-B *(EL454)*[4]	82,100						
EL467	87,948	Shell Canada Limited	20 Dec 2011	19 Dec 2016		19 Dec 2020	$18,296,208
EL468	87,117	Shell Canada Limited	20 Dec 2011	19 Dec 2016		19 Dec 2020	$18,098,660
EL469	26,533	Shell Canada Limited	20 Dec 2011	19 Dec 2016		19 Dec 2020	$7,049,269
EL470	87,495	ConocoPhillips Canada Resources Corp.	20 Dec 2011	19 Dec 2016		19 Dec 2020	$66,712,035
EL471	88,848	Imperial Oil Resources Ventures Limited	20 Dec 2011	19 Dec 2016		19 Dec 2020	$21,500,003
EL472	90,632	Imperial Oil Resources Ventures Limited	20 Dec 2011	19 Dec 2016		19 Dec 2020	$21,500,003
EL473	82,643	MGM Energy Corp.	20 Dec 2011	19 Dec 2016		19 Dec 2020	$1,512,122
EL474	86,602	MGM Energy Corp.	20 Dec 2011	19 Dec 2016		19 Dec 2020	$1,502,503
EL475	85,288	MGM Energy Corp.	20 Dec 2011	19 Dec 2016		19 Dec 2020	$2,021,213
Licence terminated, expired or surrendered in 2011							
EL431	78,516	Suncor Energy Inc.	18 May 2005	17 May 2011		17 May 2014	$2,787,792
EL436	84,353	Talisman Energy Inc.	10 May 2006	09 May 2011		09 May 2015	$12,150,000
EL437	85,993	Talisman Energy Inc.	10 May 2006	09 May 2011		09 May 2015	$32,775,000
EL438	87,183	Talisman Energy Inc.	10 May 2006	09 May 2011		09 May 2015	$3,850,000
EL439	82,820	Talisman Energy Inc.	10 May 2006	09 May 2011		09 May 2015	$5,125,000
EL440 [4]	87,872	MGM Energy Corp.	10 May 2006	09 May 2011		09 May 2015	$6,300,000
EL441	88,452	Husky Oil Operations Limited	10 May 2006	09 May 2011		09 May 2015	$10,500,000
EL454 [4]	82,100	MGM Energy Corp.	01 Dec 2008	30 Nov 2013		30 Nov 2017	$5,487,626

[1] These representatives are current as of December 31, 2011.

[2] Work Bids rounded to the nearest $.

[3] Under work prohibition orders pursuant to ss. 12(1)(a) of the *Canada Petroleum Resources Act*.

[4] Pursuant to ss. 25(3) of the *Canada Petroleum Resources Act*, licences EL434 & EL450 were terminated and replaced by a new consolidated licence EL461; similarly licences EL440 & EL454 were terminated and replaced by a new consolidated licence EL466. Note that on consolidated licences, one well may not be sufficient to hold all lands in the licences.

[5] Per the terms of the licence, Period 1 may be extended.

✓ Well requirement met as of year end. The drilling of one exploratory or delineation well prior to the end of Period 1 of the term is a condition precedent to obtaining tenure to Period 2.

Administration of Security Deposits

The successful winner of an exploration licence following a Call for Bids is required to post 25% of the work expenditure bid on the licence as security against the work commitment bid. During Period 1 of the licence, the Work Deposit may be refunded as the interest holder undertakes work on the licence and allowable expenditures are approved. Should expenditures during Period 1 fail to reach the original bid amount, the difference between the remaining deposit and 25% of the original work expenditure bid is forfeit. Failure to drill a well on the lands by the end of Period 1 will result in the termination of the exploration licence, and lands revert to the Crown. The drilling of an exploratory or delineation well in Period 1 allows the exploration licence to be continued into Period 2.

During Period 2, exploration licence terms require that rentals are paid annually, in advance, at the following rate per hectare: first year of Period 2 at $3.00; second year of Period 2 at $5.50; third and fourth years at $8.00. The rentals may be refunded upon application of approved allowable expenditures incurred during Period 2. Failure to pay rentals will result in termination of the licence. Should expenditures in Period 2 fail to meet the cumulative amount of the annual rentals, the difference is forfeited to the Crown.

Security deposits held for all work deposits and rentals as of December 31, 2011 totalled $626,493,078. Table 5 outlines revenues from administration of interests in 2011.

Non-refundable rentals are revenues collected from oil and gas leases issued under former legislation(the Canada Oil and Gas Land Regulations.).These are payable annually, in advance of the anniversary date of the leases.

Pursuant to section 15 of *Frontier Lands Registration Regulations*, various fees are payable, such as, for issuance of new exploration licences, registration of instruments or provision of copies of abstracts.

Forfeitures saw a significant increase in 2011 compared to 2010. Two factors contributed: failure to drill a well on the lands by the end of Period 1 and the surrender and expiry of a number of exploration licences (see Table 4). In addition, some exploration licences terminated in 2010 but the accounting of eligible expenditures was concluded in 2011.

Significant and Commercial Discovery Declarations

There were no significant or commercial discovery declarations by the National Energy Board in 2011.

Table 5: Revenues from Administration of Interests ($) 2007-2011

	2007	2008*	2009*	2010	2011
Non refundable rentals (Former Leases) [1]	62,749	62,749	62,749	61,127	53,195
Fees[2]	26,998	30,762	5,467	16,872	33,143
Forfeitures [3]	1,290,404	22,174,929	2,054,238	770,372	25,784,658
Total	**1,380,151**	**22,268,440**	**2,122,454**	**848,371**	**25,870,996**

[1] Former Leases were issued under the *Canada Oil and Gas Land Regulations* and continue in force pursuant to s. 114 of the *Canada Petroleum Resources Act*.

[2] Issuance fees and fees for service (s.15 of the *Frontier Lands Registration Regulations*)

[3] Work deposits which were not offset by sufficient work expenditures in either Period 1 or 2 of an Exploration Licence

* Revenue adjustments due to correction to financial coding

Benefits

Subsection 5.2 of the *Canada Petroleum Resources Act* and Section 21 of the *Canada Petroleum Resources Act* require that a Benefits Plan be approved by the Minister of the Department of Aboriginal Affairs and Northern Development before authorization of any oil and gas work or activity or approval of a development plan relating to a pool or field in the Northwest Territories, Nunavut and Arctic offshore within the area of the Minister's administrative responsibility.

In a Benefits Plan, a company proposing an oil and gas work or activity is required to describe the principles, strategies and procedures that ensure Canadians and Canadian businesses are provided full and fair opportunity to participate in the project. The Department also requires that a company monitor and report on the implementation of the commitments made in a Benefits Plan. A company is encouraged to give first consideration to local Aboriginal and other Northern residents and businesses.

Often linked to the Benefits Plan, the existing *Northern Benefits Requirements Associated with New Exploration Programs* have provided helpful guidance to companies during the development of a Plan. Companies could refer to these guidelines throughout the development of a Canada Benefits Plan to make sure that they had considered and incorporated the practices and principles that contribute to optimizing benefits for Northerners and all Canadians.

In response to the Spring 2010 Report of the Auditor General of Canada (chapter 4), the Department developed a more streamlined and effective benefits planning and reporting regime to maximize economic benefits to Canadians. In December 2011, the department began engaging stakeholders for their input on the proposed *Canada Benefits Plan Guidelines for the North*.

Environmental Considerations

As part of the annual process leading to Calls for Nominations, northern Aboriginal groups are notified of the Minister's intention to open lands and are provided the opportunity to identify areas of environmental sensitivity and those of special interest for cultural reasons. This dialogue explores concerns which may be raised about oil and gas activities initiated by issuance of oil and gas exploration licences.

Aboriginal Affairs and Northern Development Canada also solicits input from expert groups in the territorial governments and other federal departments on the proposed calls, working with departments responsible for northern conservation initiatives such as protected areas, National Parks, and National Wildlife Areas. All input, together with northern land use plans including the Gwich'in Land Use Plan and draft plans such as the Sahtu Land Use Plan are used in developing the Call area, maps, and other documents. In the Inuvialuit Settlement Region community conservation plans guide the planning of operations.

Environmental considerations and the input of northern Aboriginal groups serve to alert industry to potential concerns which may need to be addressed when companies subsequently apply for land use permits, water licences, and work authorizations to conduct operations such as seismic or drilling on their exploration licences. The area opened for nominations, the content of the Call for Nominations package, and the terms and conditions associated with both the Calls for Nominations and Bids reflect advice received through this engagement process.

Several initiatives support the analysis of environmental considerations. These include the

Petroleum and Environmental Management Tool (PEMT), research under the Environmental Studies Research Fund (ESRF) and the Beaufort Regional Environmental Assessment (BREA). These are described below.

Petroleum And Environmental Management Tool

The Petroleum and Environmental Management Tool (PEMT) is an on-line, interactive geographic information system and generates maps showing environmental and socio-economic sensitivitiesfor a selection of valued ecosystem components based on inputs from expert sources. It also includes maps summarizing geological potential.

The objectives of the PEMT are to improve rights issuance planning and support decision making, to aid information exchange with northern Aboriginal groups and other stakeholders, and to alert companies considering acquiring exploration licences of potential sensitivities which may require special mitigation efforts. Mapped environmental themes include a selection of valued ecosystem components with socio-economic sensitivity maps developed from traditional hunting information. These maps will be further refined and developed in consultation with resource management partners.

The PEMT covers the Beaufort Sea eastwards from 141°W and northwards to latitude 76°N. In 2011, two additional PEMT regions were added: the High Arctic which covers the Sverdrup Basin; and the Eastern Arctic which covers Baffin Bay from Ellesmere Island through Davis Strait to the southern tip of Baffin Island. The PEMT is updated with new information as it becomes available.

A link to the PEMT can be found at http://www.aadnc-aandc.gc.ca/eng/1100100036632 in addition to extensive background information on the initiative.

Environmental Studies Research Funds

The Environmental Studies Research Funds (ESRF) is a research program that finances environmental and social studies related to the exploration, development and production of oil and gas resources on frontier lands. The Funds are established under Part VII of the *Canada Petroleum Resources Act*.

The ESRF Management Board funded the northern study program for 2011 through levies on oil and gas interests in the North voted by the Board. The 2011 budget approved for the North by the Minister, based upon the recommendations of the Board, was $883,397.

Aboriginal Affairs and Northern Development Canada officials participate in the development of research priorities and projects funded through ESRF, with views informed by advice from the ESRF Northern Advisory Committee.

Two studies were completed and published in 2011: *Bosworth Creek Water Quality Data Study: Final Report* (ESRF Report #185); and *Ecologically-Based Criteria to Assess the Impact and Recovery of Seismic Lines: The Importance of Width, Regeneration, and Seismic Line Density* (ESRF Report #192).

The following research projects continued in 2011: *Seabed Stability Conditions in the Shelf/Slope Transition Zone, Canadian Beaufort Sea* (second year of a two-year study); *Detection of Oil under Ice with Helicopter-Borne Ground Penetrating Radar* (second year of a two-year study); *Tracking Oil Spills/Ice Hazards with Ice-Ocean Forecast Model* (second year of a two-year study).

Two new studies were added in 2011: *Improving the Accuracy of the Short-Term Ice and Ocean Forecasts in the Beaufort Sea* (first year of a two-year study); and *eSPACE: Emergency Spatial Pre-SCAT for Arctic Coastal Ecosystems – Beaufort Sea/Mackenzie Delta* (first year of a two-year study).

For further information and published reports visit the ESRF web site at www.esrfunds.org.

Beaufort Regional Environmental Assessment

The first year of this four year initiative to develop a knowledge base of scientific and socio-economic information for the Beaufort Sea began in 2011. The Beaufort Regional Environmental Assessment (BREA) will gather and synthesize regional information to inform the management of oil and gas activities in the Beaufort Sea. Governments, Inuvialuit, industry and academia are working together towards this common goal.

The initiative includes a targeted research program that has funded 17 research projects on priority issues including deep water fish populations, coastal and marine birds, seabed hazards assessment, distribution and thickness of sea ice, as well as modeling and forecasting of ocean and ice conditions.

Six working groups are undertaking projects to address key issues in the Beaufort Sea in the areas of Climate Change, Cumulative Effects, Information Management, Oil Spill Preparedness and Response, Social, Cultural and Economic Indicators, and Waste Management.

The information generated will assist regulators in making decisions on offshore oil and gas development and will provide communities assurance of government preparedness for offshore oil and gas activities.

Other Research Activities

The Northern Oil and Gas Branch also participates in shaping federally funded science research to support decision-making related to frontier oil and gas activities by representing the Department on the Frontier Oil and Gas Portfolio Committee of the Program of Energy Research and Development.

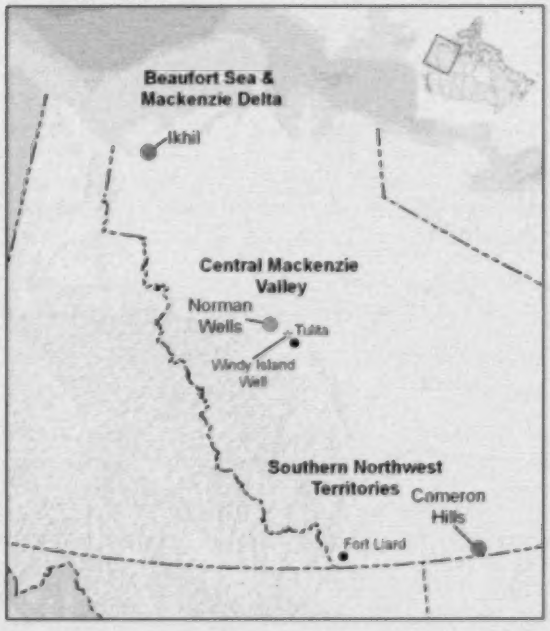
EXPLORATION ACTIVITIES IN THE NORTH

One new exploratory well was drilled in the central Mackenzie Valley and two new development wells were drilled in the southern Northwest Territories. Metres drilled in the North in 2011 totalled 5,236.1 m. In addition, 17 wells previously drilled were re-entered for work-over, re-completion or abandonment.

There was only one geophysical field operation in 2011. This had barely commenced by year end.

Total exploration expenditures in the North in 2011 are provisionally estimated at $20 million out of total expenditures for exploration, field development and other well operations of $41 million.

Figure 3: Map of Key Operating Areas in the Western Arctic



SOUTHERN NORTHWEST TERRITORIES

There was no new exploration wells drilled or seismic acquired in this region in 2011.

In the producing Cameron Hills Field, two new development wells were drilled by Paramount Resources Ltd. for a total of 3,942.1 m. The 2H-03 oil well drilled in 2011 was placed on production in April and the N-06 well drilled the previous year started producing gas in March. In addition, 11 wells at Cameron Hills were re-entered for well work.

At Pointed Mountain, west of the Liard River, Lone Pine Resources Canada Ltd. re-entered the Pointed Mountain L-68 well, originally drilled by Amoco in 1982. This well is located on one of the production leases (Lease 838-70) originally issued under the Canada Oil and Gas Regulations for production from the Pointed Mountain Field.

Table 6: Drilling Statistics 2011

WELL NAME	Lat (NAD 27)	Long (NAD 27)	Class[1]	Total Depth (m)	Metres drilled in 2011	Begun	Rig Released	Well Status[2]	Licence[3]
Southern Northwest Territories									
New Wells									
Paramount et al CAMERON 2H-03	60° 2' 20.4"	117° 30' 6.3"	DEV	2529.2	2529.2	20/Jan/11	02/Apr/11	PR	PL17
Paramount et al CAMERON E-52	60° 1' 26.0"	117° 25' 53.3"	DEV	1412.9	1412.9	06/Feb/11	01/Apr/11	S	
Re-Entries of previously drilled wells									
Canadian Forest S. POINTED MOUNTAIN (D-1) L-68	60° 17' 42.8"	123° 57' 55.9"	DEL	4186.0		24/Aug/11	15/Oct/11	S	LEASE 838-70
Paramount et al CAMERON B-38	60° 7' 13.3"	117° 36' 19.1"	DEV	1647.4		12/Feb/11	04/Mar/11	A	PL14
Paramount et al CAMERON J-74	60° 3' 38.8"	117° 28' 55.7"	DEV	1460.3		14/Mar/11	19/Mar/11	PR	PL13
Paramount et al CAMERON M-74	60° 3' 58.8"	117° 29' 56.8"	DEV	1468.3		28/Mar/11	02/Apr/11	PR	PL13
Paramount et al CAMERON I-73	60° 2' 44.6"	117° 28' 24.5"	DEV	1633.5		20/Mar/11	22/Mar/11	PR	PL4
Paramount et al CAMERON 2M-73	60° 2' 52.3"	117° 29' 31.9"	DEL	1518.6		28/Jan/11	06/Feb/11	PR	PL4
Paramount et al CAMERON E-52	60° 1' 26.0"	117° 25' 53.3"	DEV	1412.9		03/Apr/11	06/Apr/11	S	
Paramount et al CAMERON F-75	60° 4' 29.3"	117° 29' 11.0"	DEV	1458.0		01/Feb/11	01/Feb/11	S	PL13
Paramount et al CAMERON E-07	60° 6' 19.9"	117° 31' 37.5"	DEV	1453.0		07/Feb/11	08/Feb/11	S	PL14
Paramount et al CAMERON J-04	60° 3' 31.3"	117° 30' 47.8"	DEV	1444.9		25/Jan/11	27/Jan/11	S	PL13
Paramount et al CAMERON H-03	60° 2' 23.7"	117° 30' 7.7"	DEV	1657.5		22/Jan/11	25/Jan/11	S	PL17
Paramount et al CAMERON N-28	60° 7' 59.2"	117° 35' 7.6"	EX	1588.1		05/Mar/11	12/Mar/11	S	PL14
Paramount et al LIARD 2M-25	60° 24' 50.7"	123° 35' 11.8"	DEV	4316.6		11/Sep/11	16/Oct/11	S	SDL99
Frobisher HAY RIVER #4	60° 42' 18.0"	115° 53' 10.0"	TEST	194.9		20/Mar/11	23/Mar/11	Re-A	
Frobisher HAY RIVER #5	60° 42' 22.0"	115° 53' 5.0"	TEST	176.5		27/Mar/11	02/Apr/11	Re-A	
Frobisher HAY RIVER #5B	60° 42' 22.0"	115° 53' 10.0"	TEST	280.0		02/Apr/11	07/Apr/11	Re-A	
Central Mackenzie Valley									
New Wells									
MGM et al WINDY ISLAND J-39	64° 58' 42.4"	125° 36' 22.8"	EX	1294.0	1294.0	07/Feb/11	23/Feb/11	A	EL454
Mackenzie Delta/Beaufort Sea/High Arctic/East Coast Offshore									
Re-Entries of previously drilled wells									
UGFI et al IKHIL K-35	68° 44' 43.7"	134° 9' 16.1"	EX	1534.1		13/Mar/11	28/Mar/11	S	PL06

[1] Class EX=exploratory, DEL=delineation, DEV=development, TEST=Test Hole
[2] Status S=suspended, A=abandoned, PR=production, Re-A=Re-Abandoned
[3] Licence EL=Exploration Licence, SDL=Significant Discovery Licence, PL=Production Licence

South of Hay River, three old wells were re-abandoned. These wells were drilled by Frobisher Exploration Canada Ltd. in the 1940s but are currently regarded as orphan wells with no existing owner. The well heads were noted to be leaking minor amounts of gas by National Energy Board inspectors, necessitating re-abandonment to modern standards. The Department of Aboriginal Affairs and Northern Development managed well abandonment operations.

Central Mackenzie Valley

No new exploratory wells were drilled in 2011, and there was no new development drilling at Norman Wells Field.

Towards the end of 2011, Explor Geophysical Ltd. commenced a 2D seismic program in the Tulita District. This was a non-exclusive program with planned acquisition of 600 km of seismic. At year end about 59.5 km had been acquired.

In addition to this field operation, there was one authorization to purchase and reprocess existing seismic data.

Mackenzie Delta

No exploration wells were drilled or seismic surveys conducted onshore the Mackenzie Delta in 2011. Beaufort Sea

There was no drilling or seismic acquisition in the Beaufort Sea in 2011.

Arctic Islands of Nunavut

There was no industry exploration or development activity in this region in 2011.

Eastern Arctic Offshore

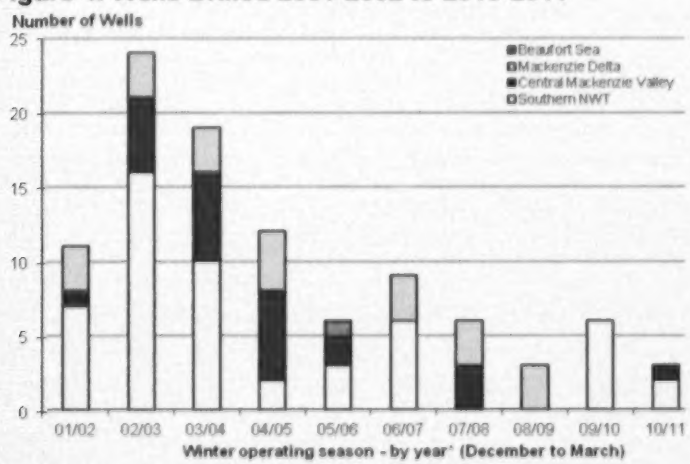
There was no industry exploration or development activity in Canadian waters in 2011. The eastern half of Baffin Bay, however, saw five wells drilled by Cairn Energy PLC on licences acquired from the Greenland government. No discovery has been announced.

[Note: The Frontier Information Office of the National Energy Board is the primary source of operational data cited above.]

Table 7: Seismic Acquisition 2002-2011

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
2D Seismic (in Km)	2,506	586	189	564	3,917	6,028	12,684	1,488	6,165	59.5
3D Seismic (in Sq. Km)	4,060	194	804	635	1,100	0	1,638	1,577	0	0

Figure 4: Wells Drilled 2001-2002 to 2010-2011



*Excludes Norman Wells development drilling. Includes Cameron Hills development drilling

PRODUCTION

Three fields produced oil and/or gas in the Northwest Territories in 2011: the Norman Wells oil field in the central Mackenzie Valley, the Ikhil gas field on the Mackenzie Delta and the Cameron Hills field southwest of Hay River in the southern Northwest Territories. Production from the four fields in the Fort Liard area continues to be suspended. There are no producing fields in Nunavut or in offshore Arctic waters.

NORMAN WELLS

Imperial Oil's Norman Wells field in the central Mackenzie Valley is the start of the Enbridge Norman Wells oil pipeline which terminates in Zama, Alberta. This major oil field was discovered in 1920 and continues to produce oil from a Devonian age reef largely underlying the Mackenzie River. The field was fully developed in the early 1980s and has produced continuously since 1985, although there were earlier periods of limited production. As of December 31, 2011, the field had produced a cumulative total of 42.2 x 10^6 m^3 (265 million barrels) over 21 years of production.

This year the Norman Wells field saw a 30% decline in oil production from the 2010 level, largely due to the temporary shutdown of the Rainbow pipeline in Alberta. The National Energy Board regulates the Enbridge pipeline that feeds into the Rainbow pipeline. The Rainbow Pipeline was shut down from April 29, 2011 to August 30, 2011 and during this time, the Enbridge pipeline was forced to operate with reduced throughput (see Figure 5).

IKHIL

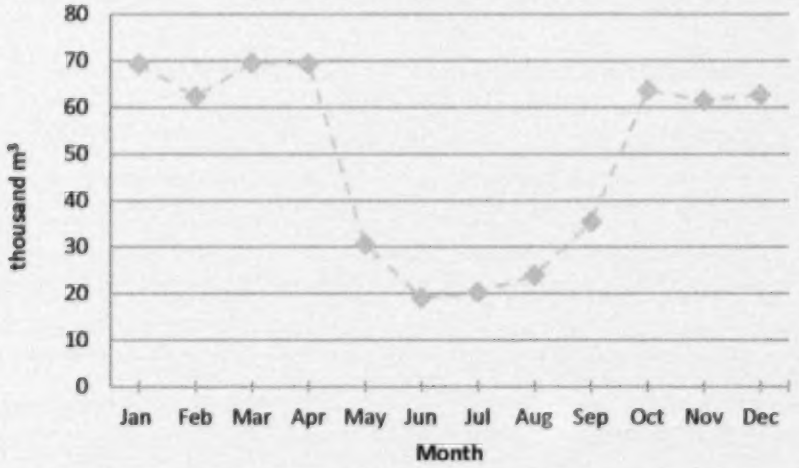
Gas from the Ikhil field on the Mackenzie Delta is produced from two wells (J-35 and K-35) and delivered through a 50 km pipeline to Inuvik, where it is used for power generation and heating. The field is operated by AltaGas Ltd. and, as of December 2011, had produced a cumulative total of 195.1 x 10^6 m^3 (6.9 billion cubic feet) of natural gas over 13 years of production.

In March, the operator re-completed the Ikhil K-35 well but by year end the well had not returned to production. All gas produced in 2011 was from the Ikhil J-35 well.

CAMERON HILLS

The only field producing in the southern Northwest Territories in 2011 was Cameron Hills, operated by Paramount Resources Ltd. The Cameron Hills field produces both oil and gas, which are delivered by pipeline south to the Bistcho area of northern Alberta. As of

Figure 5: Norman Wells Oil Production 2011



December 31, 2011, the field had produced cumulative totals of 872 x 10^6 m^3 (30.8 billion cubic feet) of natural gas and 381 x 10^3 m^3 (2.4 million barrels) of oil over 10 years of production.

This year the Cameron Hills field saw a 35% decline in oil production from the 2010 level. This higher than usual decline was due to two factors: the natural decline of the oil field and three wells produced only partially due to mechanical problems with the pumping equipment.

Total aggregate oil production in 2011 was 608.6 x 10^3 m^3 (3.8 million barrels), a 30% decrease from 2010 (see Table 8). Total aggregate natural gas production in the Northwest Territories in 2011 was 164.3 x 10^6 m^3 (5.8 billion cubic feet), an 8% decrease from the previous year (see Table 8). Over half of the gas produced was associated with oil production at Norman Wells and was required for field operations.

Table 8: Oil and Gas Production 2007-2011

	2007	2008	2009	2010	2011	2010-2011 % Change
Oil Production (thousands of cubic metres)						
Norman Wells (Imperial Oil)	964.3	893.6	869.0	840.7	588.2	-30.03%
Cameron Hills (Paramount)	53.3	47.8	32.2	31.4	20.4	-35.03%
Total	**1017.6**	**941.4**	**901.2**	**872.1**	**608.6**	-30.21%
Gas Production (millions of cubic metres)						
Norman Wells (Imperial Oil)	103.7	103.8	107.5	101.4	86.4	-14.79%
Ikhil (AltaGas)	17.9	18.9	18.0	17.7	17.0	-3.95%
Cameron Hills (Paramount)	99.0	80.3	66.9	59.4	60.9	2.53%
Fort Liard ("F-36" - Paramount)	52.6	0	0	0	0	
Fort Liard ("K-29" - Paramount)	49.1	0	0	0	0	
Total	**322.3**	**203.0**	**192.4**	**178.5**	**164.3**	-7.96%

Note: Liard Production suspended

Figure 6: Oil Production 2002-2011

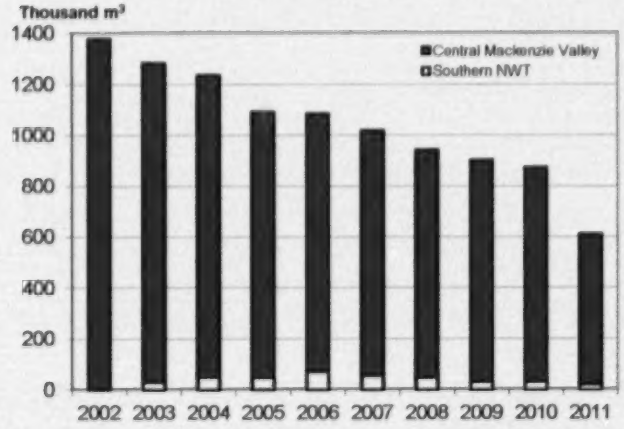
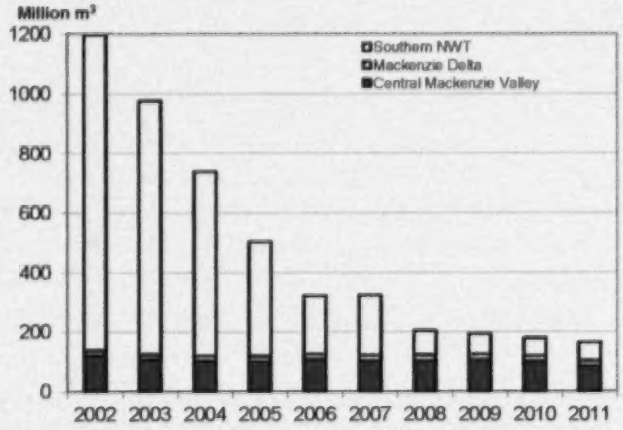


Figure 7: Gas Production 2002-2011



ROYALTIES

Royalties received in the 2011 calendar year from oil and gas production on northern frontier lands amounted to $11,652,548 (See Table 9). This is 26% lower than the previous year. Two factors contributed: the expected decline in output from producing wells and also the limited operating capacity of the Enbridge pipeline.

Royalties paid on Norman Wells production is determined by the Norman Wells Proven Area Agreement (1944). This agreement included provision for a net profit interest to the Crown on one third of total production (not reported here).

AUDITS AND ASSESSMENTS

The Northern Oil and Gas Branch manages a risk-based audit and royalty assessment program, where royalty submissions are regularly monitored, periodically reviewed and audited for the purpose of verifying the accuracies of oil or gas royalties recovered from northern frontier lands.

Two new audits were undertaken in 2011 and are scheduled to be completed in 2012. An assessment based on an audit completed in 2010 was issued during 2011 pursuant to section 61 of the *Canada Petroleum Resources Act*. In 2011, the Crown collected the total amount owed for this 2011 assessment as well as for an assessment which had been previously issued in 2010.

Table 9: Royalties Received 2007-2011

	2007	2008	2009[2]	2010	2011
Royalties[1]	$25,078,071	$30,381,061	$18,876,656	$15,762,287	$11,652,548

Note: Royalty from the Ikhil field is not included. Ikhil lies on Inuvialuit Lands and is administered on behalf of the Inuvialuit pursuant to s. 7 (94) of the Inuvialuit Final Agreement.

[1] Royalty total includes Norman Wells royalty on two thirds of production. The Crown's net profit from the remaining one third of production is not included.

[2] 2009 revenue includes a deposit of $4 million from an interest holder against an estimated royalty assessment resulting from an audit. This audit was completed in December 2010 and an assessment was issued in March 2011. The final amount owed to the Crown was received in 2011.

FURTHER INFORMATION

Northern Oil and Gas Branch

Please visit our website at www.aadnc-aandc.gc.ca/nth/og/index-eng.asp.

To obtain further information, please contact appropriate individuals below by phone or in writing.

Mailing address:
Northern Oil and Gas Branch
Aboriginal Affairs and
Northern Development Canada
OTTAWA ON K1A 0H4

Courier only:
Northern Oil and Gas Branch
Aboriginal Affairs and
Northern Development Canada
10 Wellington Street
GATINEAU QC K1A 0H4
Telephone: 819-997-0877
Fax: 819-953-5828

Information on the resource management regime, Calls for Nominations and Bids, and other related information: Manager, Land Tenure – Telephone: 819-934-9392

Information on registration procedures and regulations, exploration, significant discovery and production licences, transfers, and notices: Registrar – Telephone: 819-997-0048

Information on Northern Oil and Gas Maps, and Geographic Information System (GIS) Data:

Geomatics Officer – Telephone: 819-934-9394

Information on northern exploration history and geological / geophysical activities:

Senior Petroleum Geologist – Telephone: 819-953-8722

Information on royalty policy and royalty submissions:

Manager, Fiscal Policy and Royalty Administration – Telephone: 819-953-8790

Information on Benefits Plan requirements for Nunavut and northern offshore is available from the Northern Oil and Gas Branch – Telephone 819-953-2087

Information on Benefits Plan requirements associated with new exploration programs on land in the Northwest Territories is available from the department's Northwest Territories Regional Office at:

Petroleum Development Division
Northwest Territories Regional Office
Indian and Northern Affairs Canada
4914-50th Street, PO Box 1500
YELLOWKNIFE NT X1A 2R3
Telephone: 867-669-2469 / Fax: 867-669-2705

Other Sources of Information

National Energy Board

•The Operations Business Unit regulates the exploration, development and production of hydrocarbon resources in non Accord frontier lands under the *Canada Petroleum Resources Act*, the *Canada Petroleum Resources Act*, and the National Energy Board Act.

•The Frontier Information Office provides access to maps, technical information, geological and geophysical reports, well history reports and records.

National Energy Board (NEB)
444 Seventh Avenue SW
CALGARY AB T2P 0X8
Telephone: 403-292-4800

Website: http://www.neb.gc.ca/

Northwest Territories Geoscience Office

Undertakes research to assess hydrocarbon potential of sedimentary basins in the Northwest Territories and provides data, general information and advice on petroleum geosciences.

Website: http://www.nwtgeoscience.ca

Geological Survey of Canada

The Geological Survey of Canada Calgary provides public viewing and sampling facilities for cores and samples, and information on wells drilled north of 60 at its offices at:

Geological Survey of Canada Calgary
3303-33rd Street NW
CALGARY AB T2L 2A7
Telephone: 403-292-7000

Website: http://gsc.nrcan.gc.ca/org/calgary/index_e.php

Information on geoscience in the Baffin Bay – Davis Strait region is available from:
Geological Survey of Canada Atlantic
Bedford Institute of Oceanography
PO Box 1006
DARTMOUTH NS B2Y 4A2

Website: http://gsc.nrcan.gc.ca/org/atlantic/index_e.php